

SAN JOSE HISTORICAL MUSEUM
ORAL HISTORY PROJECT

AUDIO CASSETTE: #115

VIDEO CASSETTE: #

INTERVIEW DATE: January 19, 1993

INTERVIEWEE: Elroy Christian

SUBJECT: Family History/Machinery Forging

INTERVIEWER: Igor Ouimett, SJHM Volunteer

TRANSCRIBER: Evelyn Cannon, SJHM Volunteer

Introduction by Igor Ouimett: January 19, 1993 with Elroy Christian in his home at 1492 Cromwell Drive, Campbell, California. Recording was conducted by Igor Ouimett for the San Jose Historical Museum's Oral History Project. The interview started at approximately 10:00 a.m. and ended approximately 11:50 a.m. This is side 1 of 2 sides.

Side 2 has no identifying introduction.

EC=Elroy Christian

IO=Igor Ouimett

EC I guess you should know that I'm Elroy Eugene Christian. I've lived in San Jose all my life, I'm approaching 70 years old this year in October, so I'm on my way to being over the hill. I was born in San Jose, my father, my grandfather and my great-grandfather were born in San Jose. So we have four generations on the male side of the family. And on my mother's side she came out from Philadelphia, Pennsylvania area, _____ was what it was called, she tells me, I'd never heard of it and I've never been able to find it on a map. She came out when she was 10 years old and lived here for the rest of her life in San Jose. So she's an old timer too. She

was born July 13, 1901. My father was born on March 1, 1896. Father passed away in 1981 and my mother passed away in 1989. We had a very happy and congenial arrangement. I was their child, and I did what they said.

I guess I did have a normal life other than coming from a family with three other generations in the valley. We had our own home when I was young. I went to the San Jose High School. I met my wife at San Jose High. I had a sister.

IO When did you graduate?

EC I graduated in 1941, just the year the war started, if I remember right. I went into the service then and married my wife in 1946. We had met, that's the wife and I, and went to junior high school together and all through high school we had an off and on arrangement. We'd go together a while (laughter) and then we'd get mad at each other for a while, but it was a good arrangement because we got experience from it and the war years brought us closer together. She used to send me cookies and love letters and vice versa.

IO What branch of the service did you say?

EC

I was in the Navy, the Naval Air Corps part of it. I was Aviation Machinist's Mate during the second World War. We had two children and they were Diane and Janet. Shortly after the war we started raising children and I had a choice of going to work with my father in the John Christian Manufacturing Company which was a company that manufactured farm implements that was started by my great grandfather, who incidentally came around the Horn to get to California and went all the way on up into Stockton with an uncle that was there.

IO

Do you know when that was that he came around the Horn?

EC

Well, his company was formed -- no, I don't directly know. I have no documentation of it other than the John Christian Manufacturing Company was started in around 1856-54 and he was 14 years old when he came over here so he had to have some time of study with the uncle, some working at the old Almaden Quicksilver Mine, and he also worked with a manufacturer of boilers in San Jose, I forget the name of the boiler place. I can't document any of this. It's been hearsay from my father and my grandfather down, but there've been things I have read in the paper and that.

So he must have learned his trade of blacksmithing, which started the John Christian Manufacturing Company, at quite a young age and it's been from father to son for

four generations.

IO Now this business was not in San Jose?

EC Yes it was in San Jose. The building is still there, the second building. The first business was at First and Williams Streets. There was an old building there. My grandfather ended up first renting it and then purchasing it. That's my great grandfather, John Christian. And I guess it was a lucrative enough business for them to buy a whole lot of land in San Jose, on the outskirts of San Jose then, which would be Alma and Lick Streets, between there, and right in front of Tamien Station now. We grandfather. And in those days every time someone in the family or a friend would get married, instead of giving them a wedding gift or something he'd give them a lot to build their house on, and pretty soon we had most of our family living within that one block out there. I do have documents of the land purchase and the research that was done on it, etc. here. In fact, some day I'd like to turn that over to the Museum themselves. It would be lost in my possession when I'm gone. My girls aren't interested that much and if I'm going to do anything with it, it should be preserved. But the business then prospered and he bought this land and the company that runs with hammers to do the forging run off of different types of power. First it run off of a old steam engine

that they had inside the plant; then they hooked up to DC later. This is the plant uptown now, First and Williams; later they hooked up to DC electrical current that came off of the streetcars going by. My grandfather and my father both remember them saying and laughing about it that they could always tell when a streetcar was going by because all the machinery slowed down and then it speeded back up again as the streetcar went by. Using the electricity naturally slowed it all down, but it wasn't a good use of power so they looked for other means and finally the regular electric came along and they hooked up to that and run there. But the hammers became too noisy for being downtown in San Jose and when they bought this piece of land out there, they -- my great grandfather -- donated a piece of it, not donated but formed a corporation then in 1906 and he gave this corner lot of land to the corporation for so many shares of stock. They set up a stock company, they incorporated for 250 shares, and the rest of it was sold to family and friends, etc. to raise money for the corporation, the building, and they built the building actually in 1920, I believe, or '21 on the corner of Lick and Humboldt which is right across from Tamien Station now.

IO May I ask you a question here?

EC Sure.

IO You mentioned earlier that the first power was steam power. Do you know what kind of fuel they burned, by chance?

EC Well they had coal fires inside to heat the metal, big coke and coal fires for heating the metal to do the forging. What source they used to heat steam I don't know. I'm not sure about that part. But I know that for heating the metal they went from coke to crude oil burners and then to natural gas for heating. I don't know what, then they moved out to and built the plant on Lick Avenue and Humboldt on the corner there in about 1920-21 something like that. And the wood for the building, if you go into it, it's a uniquely designed and built building. It's a big corrugated building and it's all built with redwood beams inside and they're laminated by bolts that run through these big beams to hold them together and my dad said that all of the wood was cut in the Santa Cruz Mountains and brought down here in that size beams to be used in building our shop there. My dad and grandfather did a lot of hunting and fishing and they took many trips over to Santa Cruz and that's why they were familiar with the area and I guess they knew where to get the wood.

IO Do you know how they transported the wood from Santa Cruz into town?

EC No, I don't know. I never asked them that part of it although I do know that the beams are still there and they're still holding up and they've gone through a lot of good earthquakes (chuckle) a lot of times so it's still a sturdy strong building. And the corrugated steel that was put on it originally, it's been since 1922 now, and it's never been changed although it is started to leak some on the roof now, but it's held up through all those years and we've had no major construction problems with it at all. And half of the building was left dirt and the other half was left concrete, or put in concrete, because the machinery that did the forging had to have dirt areas around it otherwise the hot metal that came from it blew the cement up and if it was wood, like the old shop was, it would burn it up and so the cement was poured on the other side where the products that were made were finished. They weren't hot any longer so all the hot work was done on one side of the shop and all the finishing work was done on the other side of the shop.

IO Now this was before it was really your business, it was your father's business?

EC Yes, it's the same business I eventually ended up having. In 1921 this building was at Lick and Humboldt. I was too young, or wasn't born or thought of yet, when they had the one uptown. They moved out there in, oh, the

early 1900's, you know 1920 or so is when the building was built so it had to be shortly after that they moved out there.

During my childhood I did a lot of work in the company even though I wasn't supposed to probably by the state, etc., but my dad would give me a job of -- everything was shipped in wooden cartons, wooden boxes and barrels in those days -- and he would give me a job to come in after school and kept me out of trouble to make these wooden boxes that all of the products were put in. What the company made was farm implement replacement parts that go into combines and drag harrows for harrow machines that are pulled through the steel, like the orchards years ago, they would go through with a disk and the disk would leave big clods of dirt so they needed something to break these big clods up and they would drag these spiked harrows down in the ground. Later on they got these circular disk harrows, they were called, and they did the same thing except they rolled through and cut the big chunks of dirt up where before the spikes would do it. But we still made them up until I sold the business. So they went through all those years. Now the teeth that go into the combine were made for manufacturers of combines like John Deere, Massey Harris, Ferguson Company. There was a company in Stockton called the Harris Manufacturing Company, they made it, Sitehill Archer, Harvester, and it was very successful and they

made those for years. They made teeth for the J. I. Case Company in Oakland or Berkeley; up in that area they had a plant for International Harvester Company and we made all the teeth for their machines when they first started out.

IO How many, I don't know what you want to call them, teeth per week or teeth per month or pieces per month, what kind of production rate did you have?

EC Well the production rate I had during my time, and theirs was different I know, I used to make about a thousand a day on the hammer which is not a lot; it sounds like it's a lot.

IO It does.

EC But it's not really, although you didn't make it every day, but I was making around a thousand a day so you'd make 4,000 a week or so, but when you get orders for 10 or 15 or 20,000 or 100,000, like some orders we have had, it (chuckle) takes a long time to make them at a thousand a day so we -- my father tells me that they had two or three forges working in the old shop uptown when they first started making them and they would beat two hammers to make them, big furnace to heat the metal and a hammer to preforge one and then the finishing forger so it would

be cut off and go down. I have a tape that was made when I sold my business. It had a little write-up in the paper and CNN and the San Jose television station picked it up. It's from the Mercury News, I think, publication they had of it, and they came out and did a tape of the process of manufacturing and used the idea of we were the last of the forgers of this kind -- of this way of forging. It was the particular hammers that were engineered and designed by my great grandfather and grandfather. They found out that when they first started in their business up in San Jose that it was going to be lucrative enough if they could make enough of them fast enough. Originally they were made on an anvil with sledge hammers. Two or three guys, one holding and two hitting with sledge hammers, and they had forms out of the hammers that was held on there by the holder and he would shape rounds and everything on an anvil, the old blacksmith's anvil. When the orders started to getting more and more, they had to hire more and more people to work there because you couldn't swing a sledge hammer very long (laughter). Sixteen pound sledge is what they were swinging, too. So they engineered and designed these type of hammers. I imagine that they had seen them or pictures or something of them. These were unique. In my lifetime, in traveling all over the United States and part of the world, I've never seen anything like it. The hammers are unique in the forming. They had a big wooden

beam that was the actual striking part of the hammer and a cam, a three-star cam, on the back which came around and hit the back part of the beam flipping up the forging end of the hammer (I'm demonstrating as I do this with my arm), and as it came up it would bounce off a block on the bottom and go right back down so you had a reciprocal motion going up and down which became quite rapid in the forging of the teeth. So you would have, other than a man swinging with a 16-lb sledge and one following him, you'd have multiple blows as long as you get your trigger down which was your foot mechanism.

IO Do you know how fast that three-pronged thing turned?

EC You mean in rpms?

IO Yes.

EC No, not in actual speed but enough that you got a boom boom boom boom boom boom boom boom off the hammer part so the back part had to be turned back.

IO Could you vary that speed if you wanted to?

EC Yes, yes and you could change the -- well you'd have to change the wheel size and all of these were run off of one motor overhead called the "line shaft system." It's

an old method of distributing energy through the plant. Instead of each piece of machinery being connected by electric line down to the motor. None of the hammers had their own motors. One motor run one, two, three hammers, a shear press, a conveyor -- two conveyors, from one motor and I think the motor was a 10 hp or something like that, and all geared down and all overhead flat belts, pulleys and belts that drove all of this. I have some tapes that I took of it after I knew I was retiring to get out of the business, I didn't want this to go by the wayside so we had some tapes taken of the inside of the plant and how the overhead belts ran, etc.

IO Was it like VCR tape?

EC Yes. At the end of selling the business, coming to the decision to sell the business, I had offers from many people to buy the machinery. The company I sold the business to used a different method of processing the teeth that we made. They used a drop hammer, it dropped -- come straight up and down, a more modern piece of machinery and they didn't need our small hammers. They took one and we gave two, donated them, to the San Jose Historical Museum. They have them over there now. And I've always said if they don't have a film or way of knowing how to put these back together, they'll never (laughter) get them back together again. But I probably

will go ahead and donate the film, or make a copy of it, for them for documentation at least. They can see it running and know how it works. Do you think that would be a good idea?

IO Yes.

EC (laughter) Go ahead.

IO When you got your raw stock in that you made these teeth out of, or whatever it was you were making, where did that come from or how did you order that? Did you have certain specs that you ordered to?

EC Yes. We ordered certain sizes, 5/8 square, 1/2 inch square and 3/4 square, 20 feet long, a special grade of steel. This was in my time. Now before my time when I was a child going into the shop, my grandfather had devised a way of making what they called "steel laid sheets." They used a mile piece of steel and they would inlay a hard piece of steel within that steel before it was forged so when it was forged the wearing edge of the piece of tool we were making would have an extremely hard piece of steel in it so it would bend at the shaft, if a rock or something hit it, wouldn't break off. They could straighten them back up again but the wearing edge of it would have this real hard steel on it for good wear and

we got to be known, quite well known, for our "steel laid teeth", it was called. Later Bethlehem Steel Company, one of these sales people, came in to the company when my father was running it or my grandfather, I'm not sure, and suggested that they be made with one type of steel, that we could do away with the clip that we had to make to put on the top of the steel to make it hard on that one wearing edge, that we could do away with that whole process by buying a special grade of steel that would be heat treatable. So this led to us setting up a whole heat-treating process then (chuckle) for our teeth and we then went on to manufacturing by ordering this special grade of 10/40(?) steel from Bethlehem Steel Company rolled in the quantity and sizes we wanted and we would forge them and heat treat them then, but we'd only heat treat them on the ends that would give us hardness where we wanted it for wearing and softness where we wanted it to bend or tread. And we're talking about the steel-laid tooth that was made for a company like Harris Manufacturing Company up in Stockton, and they were a very successful company manufacturing harvesters because when grain is planted on the side of a hill and you use this what they call either a stationary or whatever harvester or thrasher -- the difference between a thrashing machine and a combine is that a thrashing machine was stationary and they brought the wheat to it and the combine later took the thrashing machine on

wheels and went through the field with it with either a steam engine pulling it or tractor or later on a regular tractor. But they couldn't plant grain on the side of the hill because when they went to harvest it with a harvester, not a thrasher, all of the wheat and everything would run down the one side of the cylinder so they had to have a leveling device in it to level the cylinder up all the time that they were on the side of the hill. And Harris had engineers design the process of quickly, by hydraulic-type systems or chain systems, quickly to change this back and forth so that they wouldn't have to stop thrashing. They could go right on through the field, just keep adapting, they could make a turn and come back the other way and switch the whole cylinder the other way so that the track, the harvester, could be going on the side of the hill but the cylinder that actually does the thrashing is always kept level so that the whole thing thrashes instead of all the wheat running down the one edge of it.

IO Was this a unique feature to the Harris?

EC Yes, it was a unique feature to the Harris, but after so many years of it being manufactured all the other combines -- John Deere, International Harvester and everybody else -- had seen it and found out how successful it was and they adapted to the process so they

all ended up having this unique feature to it later on. But because they came out with it first and being so successful they sold many, many of these teeth and they used our teeth.

Now we also bought the nuts which we threaded that we bought the blanks, they call them, and we did all our own threading of our nuts that go on these teeth.

Are there any questions? (Both men laugh)

IO Did you ever experience any problems getting material? Was it always delivered on time?

EC Well in my time in the business, I experienced one period of a problem getting steel. We had a shortage of steel in the year, I don't remember the one. The value when everything was skyrocketing and interest rates were going high and there was a big demand for steel so it was difficult for us to get it but we did get all we needed because we'd been with Bethlehem for so many years and had such a good record with them that they supplied us before they supplied what they called their "second demands"; in other words, if there was people who had run out of steel that never bought from them and then were trying to buy from them, they'd stay with their own people first which was a good idea.

IO The Bethlehem people that you did business with, were

they local or were they out of state? Where did the steel come from? You know?

EC Yes, the steel came from, well it came from two places. First, originally it came from the Bethlehem Steel plant in San Francisco where they built this -- the old big boats there. You remember there was along the Highway 101 going up there, there was a big Bethlehem plant. Well they had a rolling mill there and then in my time they closed that down because they opened a new one down in the Los Angeles area, and they rolled all of our steel down in Los Angeles until probably ten years before we sold the business in 1986. Then the only plant that would roll it and in the quantities that we had to order was too great for us -- they demanded big quantities -- were in Seattle, Washington. Then they even discontinued rolling the sizes that we wanted up there so we had problems getting the steel at that time. But the fellow who was one of the top salesmen for Bethlehem Steel had, after 25 years or more of working with them, was laid off during this period of time; and he took over our account and he found a little steel mill in Upstate New York that would roll the type steel we wanted in the quantities that we required and they would ship it out here to us. So we did have some problem getting it, but most of the time we didn't.

IO Do you know whether they shipped it by rail or by truck?

EC They would ship by truck from Los Angeles, by piggyback from New York. It came out piggyback. It was on a truck trailer but not the truck part, not the tractor part, just the trailer would come out it was on and then they'd have to go up and hook on to them and bring them out to deliver them.

IO You would get your order like the whole truckload? Is that what you're saying?

EC Oh yes, two truckloads.

IO Two truckloads!

EC Yes, we'd have 40,000 lbs. come in at a time -- no, 60 some odd housand pounds -- 15 to 20 tons at a time, so we'd run up about 60,000 lbs., 30 tons in seven months or eight months. But it was turning over, all we did was buy steel, put it into a product and out the door it would go. (chuckle)

IO When the steel came to your facilities, how did you handle the unloading and storing? What was involved there?

EC

Originally we just hand cranked it with crowbars off the sides of the truck, believe it or not, originally, and then the truck would pull away and the big piles of steel had busted open by then and fallen down. We'd have one man on each end that would restack the steel in the bundles. And they would have back into our shop and just threw it off both sides and it was a mess. But then later we put an overhead crane in with a hoist on it that would hoist 5-ton bundles and we would have them load it, in less than that because that was the maximum of our hoist, but we could hoist them off and lift them over instead of down then on the side of the building. As time went on the trucks got bigger and bigger, these big semi's, and we had a big cannery across the street from us and pretty soon they couldn't back in because they were too long a truck (laughter) so we had another problem. We had to raise the door up in the back and that's so they could drive through. In that way they'd be able to get into the shop and out where before as the trucks got bigger they couldn't back into our shop any longer. They just gave it up and said you'd have to have -- come down and pick them up in smaller trucks or something, and that was an added expense naturally to us so we didn't do it. We looked for a way to get the truck into the plant without that. In fact we've had drivers come there and try backing up numerous times and then they'd get out of the truck and run around behind and

say, "I don't have to do this kind of stuff." (laughter)
Then they'd go in and call up (laughter), and then they'd
send some mechanic over and he'd back it in the first or
second time. It was quite a difficult approach to get
in. It was a narrow door; in 1920 you weren't looking at
great big 1950 trucks, you know, so that became a
problem. But we solved that.

IO You mentioned some time earlier here that when your
father had the business and you were working for him as
a child or young fellow, you were making wooden boxes to
ship these things in. Did you have special woodworking
equipment?

EC You mean by handsaw? No, we would buy the "shook", they
called it in those days. The sides of the boxes and the
tops and the ends and all that were all cut by a lumber
company here in town and we would go over and pick it up
in the pickup truck, or whatever method we could get or
have them deliver it if we ordered enough of them, and it
would all come in pieces and we'd weld it or made a form
for them to shove the two ends in; you'd put the side on
there and nail three nails into one end and three nails
into the other end, turn it over, nail the other side to
it, turn it on the face of it which would put the bottom
in and we'd nail the bottom into it, I would. I was a
child, I could do that. Then stack them up in a pile and

you'd put one flat and one on end inside the other and the other over the top of it. So you'd get three of them in a smaller area. I learned a lot being there and while I was doing this as a child naturally I took time and coffee breaks with the guys and all that and I would watch the process that was going on. I remember going over there when I was younger than when I could work over there and climbing into these big barrels they had there because when the hammers ran it set up a vibration in there, and in those days we didn't know about ear protection and things like that. Everybody that worked in the plant never had any of that so there probably were many of them that were injured by the sound. It's quite a loud tapping of the hammers that goes on. But I used to lay there and fall asleep because of the noise after school, or at other times when they worked weekends I'd go over there and play around in the back yard. They used to take cuttings from the threading part of the teeth, and in those days I think when they first started there they used some type of a fish oil or something to help cut it. And all the cuttings were taken out into the back lot and dumped on each side of the little road that went out behind the lot. I don't know whether I should be mentioning this though (laughter). When the piles became a certain size we would have them hauled away and then they'd start all over again. LaVin's(sp?) Scrap Yard would come over and pick them up and you'd

shovel all this scrap into the field bins and they'd take it over and you'd get two cents a ton or something for it (chuckle). But I remember that and often wondering how long this would go on. During my time we couldn't do that; we didn't dump anything in the back yard.

IO Was this because of government regulations?

EC No, in those days they didn't have any government regulations. Oh, I see what you're talking about. Yes, more or less, government regulations and the cities, etc. refining their laws, etc. and understanding our environment better and better as we went on. Government had a lot of new things that you had to abide by and change, painting methods, change the heat-treating processes that we originally put in that were polluting, I imagine you would say, and change many different things in our company that we probably wouldn't have changed had not the environment -- the government became more aware of our environment because of the pollution. Many companies did things that they couldn't do or wouldn't do today on their own and they got away with it. Nobody said anything to them about it. They didn't know that much about it. As they became more and more aware of it, we changed painting. We used to paint our spikes with a silver-coated paint that used aluminum oxide from the inside to give it the coloring mat and it was a perfect

way to paint because we painted them after heat-treating and they would be still warm from the heat-treating and you would _____ painting, it's called. You dipped the whole 150 lbs. or so down inside this bucket of paint and raise it up and let it drip till it almost stopped dripping, then we'd throw it on a big drying tray which would perforate it, expanded metal, so if there were any dripping it would fall on the tray and run down and collect into a 5-gallon can underneath. But because of the type of paint it was, they came out and we talked to the government people on it and then they said we'd have to change the method that we used because it was polluting the environment and the air of the men working there. And I presume it was but it didn't hurt me, I'm still here (laughter). But we had to change to a water base paint and it didn't work out as well. Eventually we just gave up painting them all together. We figured if the farmer wants them painted he can paint them, and we sold them without being painted.

IO You mentioned something about heat-treating. After you forged these into the shape that you wanted, did they go through further processing, heating, quenching, water or oil or something?

EC Yes. After we forged the shape that we wanted, they would be put into a big heat-treating furnace. I guess

the size of the inside would be 3 foot by 4 foot deep by maybe 3 or 4 foot high, so we'd throw in 4, 5, 600 lbs. of them in there by hand. The furnace would get up to 1250°F. We usually quenched below that, close to it, and by quenching I mean the steel that we used, this 10-40, was water-quenched steel. They make oil or water or other mediums. They would be then dragged out of the furnace, which was a flat bed like an old pizza oven. Yes. After it reached 1500° or 1250° , you'd reach in with a rake-type mechanism more like a hoe turned down and you'd pull out so many of these onto a big -- like a snow shovel, I kind of forgot the name of the shovel they used to be called -- but big wide shovels, and a man would stand there and catch them and then he would dump them into a basket of water -- a basket in water -- and this would be the first quenching of the product. Then it would have to be raised out of that hot water after the 2 or 300 or 400 lbs. went in there and let drain and they would be dropped down into sodium nitrate and nitrite which was melted salt, really, and saltpeter, and this would then heat the temperature back up to about 600 to 700°F. which would take all the brittleness out of the quenched piece of steel.

Side 2

Come over and put them down in this soft melted salt solution which would heat them back up again to about

600°F. which would take all the brittleness out of the heat-treated piece of steel so that it would have a bigger tendency to bend than to break but still be hard enough to have a lot of wear in it. One of our big selling points was that we sold things that wore for a long period of time.

We did little advertising. We sold it in seven western states mostly. We did hardly any advertising; the little bit of advertising we did do we were never able to document that it helped us one cent. When I ran it I didn't do any advertising. It was all word of mouth. You could talk to any farmer, and you can today as out in the field, and they'll know of the Christian Manufacturing Company. Of course many of them instead of calling us Christian they called us, "You know all the Christiansons and the Christiansens", etc. but they were all talking about the same company. And they knew we made a good product, we stood behind it. I made many a trip at odd hours of the day and night or whenever to satisfy a customer that would be up in Marysville, Yuba, Oregon, that's the antique club (laughter). But we'd go there as soon as we could after hearing the problems they had and we'd see if we could solve them for them, replace the teeth that were our fault; we accepted responsibility for what we made and the word of mouth advertising was the best kind in the world.

IO Did you have any kind of quality control or technical department or anything like that?

EC Yes, we had testing equipment, you know, like Rockwell testers and ballpine hammers that you'd hit it and if it broke it was too hard. (laughter) But we also had Rockwell testers that you could grind them off to get the little surface you could on it and then you'd make a test on it and it told you how hard the steel was by the type of point you used in the reading on it. But other than that we made the same product for so long and there was always somebody in the plant that knew all about it so we made sure we bought the right product -- steel -- to make what we wanted and then we'd make it the way that we would want it made if we were a farmer and we were very successful with the _____. There was four generations that made a living off of the business, and the only reason I sold the business was I had two girls and neither one of them wanted to run -- well the older one did but she couldn't do the physical work that went with it, and the sons-in-law they weren't interested in it. They had businesses of their own, interests of their own. I did have a grandson later on before I sold the business, but he worked in it and found out he didn't like it at all (laughter). It wasn't a clean job, it was a dirty job and most people wouldn't work there. We used to hire people sometimes from out of the unemployment

office and they would send them out with a little card that if you didn't hire them you'd sign the card to prove that they came out to see you, and many of them would come out and the first thing they would hear is these hammers running making this loud noise and to them it must have been deafening because you couldn't even hardly talk in the office with the doors closed when they were running out there. And the first thing they would say, "Does this go on all day long?" (laughter) We'd say, "Yes it does, this is our business." "Oh, I couldn't do that, I'd go crazy working in here. Could you sign this card please?" And they'd leave and we understood. But then you also got some good ones that came in and they didn't mind at all. Usually they were deaf or they got deaf soon, or whatever; it didn't bother them.

IO You don't appear to have any hearing problem. I don't know, do you?

EC No. I have the normal what a 69 year old man would get. Other than that I can't attribute any hearing loss to the shop or to the plant or the loud noise, but that doesn't mean I may have been an exception to the rule although I worked there 40 years in the hammers and 30 of those 40 years or 35 of the 40 years I worked without any hearing protection whatsoever. And then because of the Environmental Protection Agency and the reports they

made, we invested in all types of hearing aids, not hearing aids I shouldn't say, but hearing protection devices, and I think we had more trouble sending people to the doctor because of infections in their ears where they never had before (laughter). They would use these screw-in type hearing pieces that you'd stick in your ear and I guess they didn't clean them or wash them well enough or whatever and they'd infections inside their ears. And we had a lot of trouble with that, and yet they wouldn't allow you not to use it and you had to have them. We'd buy the type that clicks on with a hard hat and hung over your ears, but they were so hot; in the forge shop, that sweat would just pour off these guys; they're like wearing earmuffs in the middle of a -- hell, with the fires going, roaring and hot, they just wouldn't wear them. They'd slip them off, throw them away. We'd tell them, "You got to wear them; see the sign over there, you gotta wear it." They'd say, "You tell the guy to come here, I'll let him put it on." etc. (laughter) We tried to do the best we could to protect them along the way.

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When you were doing your business -- I guess I'm trying to find out how many -- what was the most number of people that might have worked for you at one time? How high and low did your labor get?

EC Well one time we had about 12 people working for us. Now this was during a very busy couple years, but most of the time we'd work with five or six people. We would have three people to run the forging line and two people to do the finishing almost all the time so we would have five people under employment almost all year long.

IO Did you have any other people that worked like in an office or took care of paying bills or things like that?

EC Well, I did a lot of that myself mostly paying bills and so did my father, but we also had wives that did help. My mother did a lot of the work; even after I took over the business from my dad, she would come in and help with it because she knew all about it.

IO Do you remember when you took over your father's business?

EC Not really. I remember this that might help and then you might understand it better. When I got out of the service -- I was an Aviation Machinist's Mate in the Navy -- I had an opportunity to go to work in San Francisco for Pan Am or United Airlines immediately, if I wanted to, because I had the documentation from the Navy and I also had my father who said to me that if I was interested in coming into the business -- he wasn't

proposing that I do it or demanding or anything else. I was married and then starting my own family then when I first got out, and he said if I wanted to I could come into the business and when the time was right for me to take over he would give me his interest of the business, which was over 50% at that time. That's another thing that was interesting. Remind me to tell you that about this business after I tell you this part. So he said that when the time was right he'd give me his controlling interest of the business and I could do with it as I wanted from that point on. Well, it didn't take place that way; we found out that if you give -- through the government rules and regulations, if you give so much away, over \$10,000 value a year you have to pay tax on it. So the business was given to me over a period of years and my control over running it became more and more demanding on me to do it and not my father; my father started taking longer vacations -- not that he didn't work there, he always worked there up till he died almost in the plant, and I told him he could as long as he wanted to and I paid him for it. So I took over the business maybe over a 10-year period. A little bit of it was given to me and then the wife and I scraped enough money together, I believe it was in the 50's, and we bought out an uncle who had acquired the rest of the shares.

Now the point I wanted to tell you about was,

through the years after the company was incorporated, every time that a relative who had purchased or was given so many shares of the John Christian Manufacturing Corporation would die their 15 shares or 20 shares or 25 shares, whatever they had, would go to maybe four other, five other in the family -- of their family -- their children acquired them, which would be my age, let's say, as they were coming along. So the shares that were originally maybe held by 10 people eventually became held by a hundred people. They had shares -- instead of if one party who died had 10 shares and had five kids, each would get two shares so it became more and more spread and thinner and thinner as it went. And everybody that got shares from their parents, the only thing they were interested in when they came to a stockholders meeting was how much money did you make? and how much are we gonna get on the dividend? So every year at the first of the year we would end up having to pay on these dividends and having no money to start out (chuckle) for the new year. So my dad finally purchased, through conniving with aunts and uncles, 51% of the stock -- outstanding stock. And my uncle, his brother, had saved some money from the second world war working for Lockheed over in England putting P38's or something together over there that they were using and didn't need much money to live off, came back; he had enough money and my dad said, "I own 51% of the company. If you're interested in coming

into the business with me and you want to buy out the other half and you've got the money, you're more than welcome. You'd probably have a job the rest of your life." So he put enough money together and they sent out a letter to all the other stockholders letting them know that now that my father owns 51% of the stock that there were going to be no more dividends paid on stock until we managed to put some money back into the business and build up the equipment, etc. again. So it wasn't hard for him to purchase out the rest of the shares so he bought the rest of the shares, and when my dad eventually through the years gave me the controlling interest of these shares, I propositioned him to sell his. And he didn't want to sell it; he was still working and he had a crippling disease coming on and it progressively got worse as the years went by and he knew he couldn't work anywhere else, and I guess he didn't have a retirement -- we didn't have any type retirement plan in the company -- so he stayed on working. But he died and when he did I still made the offer, the same offer, to the wife, and after negotiations I bought out the other half. So I own all of the shares of the company; I didn't have to deal with anybody else after that point. What year that was, probably 50's or 60's I guess, something in there, and I owned it outright then from then on, or my wife and I did, and we didn't have anymore troubles with stockholders. We did have a CPA who worked for us for

years, a woman first and she recommended a man, and all of the government withholdings and whatever other taxes, etc. we had to pay were all handled by the CPA who would come in and do our books once a month for us. The weekly-type billing and paying the bills were done either by myself or my wife, etc. I did hire a couple girls for a short period of time hoping that when we were making enough that I felt it would warrant it, but I found out it didn't pay (laughter) -- I never got what I wanted done for what I was paying for so I finally let them all go and they were just as happy to leave. They were working for experience; in fact one of them came back many years later. She said, "You know, Mr. Christian, I often thought about you; you gave me the best training that anybody could have." And I said, "Well, I don't understand what you're saying." She said, "No matter what I go into now, whatever you did for me everybody likes me now." I said, "Well, I just told you what had to be done and the way I thought it should be done and the way you should act and how people should show up for work and call in if they don't, etc. I never gave you anything different than I think anybody else would." But I felt great about it, it was a very nice compliment coming from one of my employees.

I had another experience that helped me to sell the business. About two -- ah, let's see -- we had decided that I would have to start taking more time off as we got

into the latter part of our years at working and to do this I had a foreman who worked for me for 17 years, and I told him that I would like to put him on a three-year program to teach him how to make the dies because we had a self-supplying type of a business; we made our own dies for our own teeth -- we had shaper, a little milling machine, threading machines and all this was in the plant, drill presses -- so we made our own dies. Nobody else knew how to make them; they're hand forged on the hammer that they have to be tapered correctly, it's cut _____, unless you were a forger you wouldn't know what you wanted. They were a unique type of forging system we had in that the normal procedure for forging is you put an impression in a die, top die and bottom die, and you put a hot piece of metal in there and this die drops directly on it which forms a tooth after two or three blows and it has a big flange around it and then the flanges.....

IO Are there stages of dies?

EC Yes, there's probably two stages, a roughing stage and -- maybe three stages in the current way of making them today, modern way. They rough drop them, then they form the drop, then they finish drop to size. That leaves a big flange around the outside of them which is then put

immediately under a press which has the shape of the tooth ear and you'll see on the one I'm showing you here there's a trim edge all the way around the whole tooth that's been trimmed off. See it there? Or it's trimmed all off then and the tooth is made. On our die when we got through forging it under the hammer it was the shape, it needed no trimming except the ends. It would be put in a pair of tongs and shoved underneath the trimming press and this end, the working end, would be cut off and put into the quenching tank. It would go through the tank and fall off. The round edge which was forged would be left unheat-treated, soft in other words, so then it would be taken over, cut off by another shears on the other side and threaded then. And because it wasn't heat-treated it could be threaded at that point. We didn't need any further heat-treating on that type of a tooth. (cough)

Now on a tooth that the modern day makes, they forge it, not faster -- where we made a thousand a day they make 600 an hour on their machine. They make three at a time.

IO Is it just one machine that you're talking about?

EC Yes, one machine. Two or three men though. But we used three men to make a thousand. They use three men and they make up to 600 an hour so you see there's a big difference between the two. But they have to heat-treat

them after though. After they make them, the new process today on drop forges, they go into a heat-treating furnace, come out and go through a tempering tank -- quenching tank -- and then a tempering area. A piece of steel is only as good as the heat-treating for wearing quality. The heat-treating process works when the piece of metal is heated up and quenched into a medium -- water or oil or salt or some type of medium for cooling -- the rapidness of the cooling makes the steel harder or softer. But it also makes it brittle so when you quench a piece of steel into especially water, it immediately cools it but it cools it like a piece of glass so it's very brittle. If you went to use it in that state, they'd break right off the minute they were hit with something. So you have to reheat them again only you don't bring them up to a heat of quenching like in the heat-treating process; you bring it up in a tempering process very slowly over a period of an hour so the metal reheats itself to 4, 5, 6000, depending on the type of steel, then it's taken out and let cool and at that point the steel is at a very hard surface but not brittle. The brittleness is all taken out. It's like putting a hot pad on your arm and all the pain leaves. You put a hot pad back on the tooth and all the brittleness goes (chuckle). I guess that's a good way to describe it anyway.

Most of our products were sold to dealerships that

we had set up, mostly in California but we did sell them in Washington and Oregon and Arizona and some in Nevada, but not through dealers. The dealers were in Oregon, Washington and California. And the dealers were already in business for either John Deere, International Harvester or whatever the name of the man who owned the business. He would open up his own shop. I'd go in there or my dad would go in there and introduce ourselves and they would know all about our tooth. Many have said to me, "Well I didn't know I could buy them from you." And we'd explain that we sell them through a dealership; we don't sell directly to the farm, or tried not to. It was hard to get away from it because my grandfather had sold them to anybody who wanted them. Then my dad tried to set up the distributorship of the teeth to distributors first and they ended up selling them directly to farmers so that put out a dealer in between. I don't know if I'm explaining it right, but from the original manufacturer we were going to give it to a distributor and the distributor was going to sell it to all of the dealers, then the dealers would have the teeth purchased by a farmer. So the farmer to dealer to distributor to us, so the only one we'd be concerned with would be the distributor and he'd be buying them cheaper because he'd be buying them in bigger quantities. Well it didn't work out that way. He found out that he could make more money or sell them direct to the farmer because

many of the farmers came in to buy products from him because they had shops as big as some of the other dealers had -- some of the big farmers did especially in California. We're talking about millions and millions of dollars of equipment that they used in the farming end of the line so they could buy from actually manufacturers, probably more so than some of the others.

We discontinued selling to the distributorships and we set up our own dealerships so we could charge a little more for our products. They would still be handled throughout the state and sold to the farmers and the distributor was out of it then. And we would deliver by taking an order, a given specific date to deliver, and they would have to wait for them. Most of the time except during the winter we would build up stock; that's why we worked all year long. Most of our products were sold in the spring of the year and in the summer for the harvest that comes in July, August and September, and after September it would slack off then. And our harrow spikes would come into being, which was the product for the other six months of the year. One product we made for thrashing during the summer; the other product we made, harrow teeth for harrowing the ground, getting ready for the planting for the next season again. So we had a year-round process of production being that we were producing something that was used mostly at different times of the year.

IO Did you have a goal that you wanted to make like 10% more than what your costs were? How did you determine what the cost of your product was going to be sold at?

EC That's interesting because I had it all down. We went through a period of inflation. I don't know if you remember back but it was unbelievable -- it went up to 14 or 15% at one time, and as we went through this process I had to devise some rapid way of reaching price changes quickly. So I individually figured out what it was costing me to make one of these products and where each percentage of the cost was going: into material, into labor, into the by-products that I had to buy to make these things. And each time the inflation would go up a point or two points, I could add that to my product in knowing what the cost was originally which I did by a process of elimination really. It wasn't any calculated method that you get out of a book; it was arriving at what I needed to survive on and what I needed to make a profit to put back into the business or to put in my own pocket, if any was left and there wasn't very much left usually. We made a living off the business, we didn't make a fortune but four generations made a good living off of it. But other than arriving at how we arrived at it, we paid so much for seal -- if they would raise me so much on it, I would figure how much of that would go into a tooth and raise the product that much. I have it in a

book, I'd have to look it up.

IO When you were doing your forging on your trip hammer, or whatever you call it, did you work with long rods or did you have precut pieces that you used?

EC We worked with tongs. We made all our own tongs, we made all our own tools. A tong is like a pair of pliers with long handles though and they were shaped to grab certain parts of the tooth; like the round, it would be made like a diamond so that it would grip this and it wouldn't turn around on it. The other end you could grab -- we had different tools for trimming; you'd put it into the tongs but it would stop on the shoulder here, it would only go in so far so every tooth, no matter what the size that you ended up forging on the shoulder, the distance from that to the end, which had to be exact in the machine, would always be the same because it fit into this tong so far and bumped up against the stop underneath so that it would either cut the tooth out the exact length that you wanted but, what I'm trying to say is, no matter whether the forging was exact or not you would still get the distance between this and the end that you would require, otherwise it would fit inside the machine.

IO But when you were making the forging was it precut pieces or was it on the end of a long rod that you forged it and

cut it off and forged another one?

EC When we first started, we took a 20-foot bar and we cut it into three sections so we'd have 6 to 7 feet long bars. They'd be stacked over near the furnace; the furnace man would take the bars and he'd run -- in my furnace, it was gas furnace -- he'd run five or six bars in the furnace and he would pull the hottest one out, put it under his hammer and step on it and it would cut it off to a specific length; it would come down onto a conveyor and the conveyor would bring it down to the forging hammer. Now the reason we did that with a hammer rather than the shears was some of the teeth had to be preforged and they would be preforged in that first cutoff, before the cutoff. If the round part had to be knocked down first, we'd have a shape inside that cutoff hammer at the furnace _____. And he'd shape that and then put it in and cut it off and it would come down to the next forging hammer. And then they would all be the same, you'd set it up for each. So you'd work off a big piece; the first thing you'd do is cut it to the size you would want. Now this was for cylinder teeth. Now on harrow teeth we would take the 20-foot bar and put it on a rolling table, it had a shears that went up and down, a big shears -- a 20-ton shears -- and you'd push it through to the length we made 8-inch to 16-inch harrow teeth, and you'd slide this through and the shears would

come down and cut it off and you'd slide it through and it would cut it off.

IO Was the steel hot at this time or was it cold?

EC No, the steel was cold. And you would cut it all to length and pick up the barrel with a lift truck which we purchased and take them over to the forging, and we would forge the point on it and then heat the other end and the other end would go into an upsetter we had which would mushroom the end on it.

IO I want to go back and ask you another question. When the fellow who was putting these 6 or 7-foot long rods in the furnace and heating them, was he heating the whole rod or just the end?

EC Just the end.

IO And he would cut that piece off and put the rod back in the furnace and heat up the end again?

EC Yes. It would naturally be preheated as you go; as you keep shoving the piece in and cutting it off, you already got the end either red hot or partly red hot so you'd put it back in the furnace.

IO And he was working with 3 or 4 or 5 pieces at a time?

EC Yes.

IO He was pretty busy, really going around.

EC (laughter) And then you could turn the fire down if you were getting the right temperature. You had to have a fire that would melt bricks; it would get up to about from 2700 to 3000°F. at times and I've seen the brick, if you didn't control it, the brick would just melt and pour right out of the sides of the fire because it was up higher than what the temperature of the bricks could stand.

IO Now was this when you had the gas fire?

EC This was when we had the gas fire, yes.

IO You didn't experience that previous to the gas, did you?
I'm not trying to put words in your mouth.

EC Yes, I can remember when they used a crude oil fire, not when I worked there; but when I was a kid they used a crude oil fire and they pumped air and they preheated the crude oil and the force of this air would vaporize the oil as it went into the fire and that was difficult to

control for temperature. And they had an opening where the flame would blow into the furnace where the brick, when it got too hot was melting, it could run out and drop down onto the ground because otherwise it would build up in there and I guess the whole bottom would fall out. I don't know why but I remembered seeing that. Every day the furnace man was supposed to get there half an hour ahead of time and he would be paid for it -- now he didn't do it volunteer. I guess they did volunteer before, it became part of your job, but in my day you had to pay them; they wouldn't go to work a half an hour ahead of time. And when we had to do the fire work from some of the bricks melting and running down, you'd have to pay a man to come in a half an hour early but in my father's day I think that was part of the job. They came in and chipped out all that brick and patched it up with high-temperature patching cement, they called it, and then they'd have to start the fire up slow for that to dry but it was rapidly-drying-type cement that you could use and start a fire right up and work with it.

IO Did your furnaces, did you keep them hot 24 hours a day or did you let them cool down at night?

EC The one that we kept hot we'd shut it off at 4:30 in the evening and if it was a weekend I would go over there on Sunday night and start the heat-treating furnace so that

by Monday morning when we came to work it would be ready to go to work. I wouldn't put anything in it, we'd just start the fire on low so that it would be up to 800 or a thousand degrees maybe by the time we got there. It would take a long time, but the other fires no, they were rapidly heating; you'd start a fire in the morning and 15 minutes later you'd have steel ready to go.

IO This heating and cooling of the bricks, did it tend to make them deteriorate?

EC Yes, in the heat-treating furnace they did. They had a tendency to crack. They cooled and back and forth. They cooled slow; it would be like a bread oven that they had years ago, when you stopped cooking bread and take it all out you usually stoked it all up with bricks in the front and covered the top over, if I remember right, so that the oven would cool down slow and it wouldn't crack or break on you. We had all that kind of trouble but there's ways to get around it and new technologies that you adapt or accept.

I was born a block away from the shop I worked in and the house I was born in is still there. The house that my father was born in is still there on the corner of Floyd and Palm Street. I was born on Palm Street and those two houses are still standing today, of course they don't exactly look like they did then. I can remember my

great grandfather, John Christian's, house that was on Lick Avenue which is gone and been gone for a number of years. It was a great big Victorian-type house with a whole wrap-around porch on it, two stories. I can remember across the street from there was a -- used to be known as the San Jose Canning Cannery -- a street, and I think it was called Sunny something, Sunnyside or something like that. This is a little humorous story I'm throwing in. They planted beans in the east side of that road and it was a city street, it's on the old maps of the City of San Jose. And each year they would plow up a little bit more of the dirt road that went down to the Coyote Creek and eventually one year, instead of plowing up and down the road, they just went straight across the road and eventually the road was gone. Nobody ever said anything, nobody knew anything about it, I don't think. They even took the cement gutters that were turning to become a road, they dug them up and took the curb right straight across and the road is now vanished (laughter). I don't know whether they got permission for it or how or what happened, but I saw it really take place and I mentioned it numerous times to different people. And not too many even know of the name of the street, and I don't remember off-hand; it was Sunnybrook or Sunnyside or Sunny something Street. And it was there because there were houses down there, a pepper tree where I used to go and hunt birds in the old pepper tree, underneath with my

beebie gun.

I can remember the outskirts of town was about a block away from us; where Alma is today that was known as Cottage Grove. You couldn't buy fireworks inside of San Jose even way back in my childhood days, but I walked two blocks away and got into the county into Cottage Grove Avenue area on Alma and I would buy fireworks from the corner grocery store. So did everybody else in the area. I can remember delivering papers for the Mercury News. I used to get up at three in the morning, 3:30 I would go down and lay on the benches if the presses weren't running behind; we'd get our papers, I could get 'em out and get 'em delivered and probably be home in bed by 5:30 or 6:00. I'd sleep up until 7:30 and jump up and gulp down breakfast and run to school, and the school then I was going to Woodrow Wilson, which is still standing today but not being used in the school district any longer; it's being used by the city or something for some type of building, I'm not familiar with it. And that was quite an experience because when the presses broke down or something we would end up sleeping on the boxing tables. In my day they did what they called "box newspapers." Papers were thin enough that you folded them and folded one inside the other and you could stack them in your paper bag so when you went by a house you could really let it fly. It would be folded into one square piece. Now today the papers are so thick most of

them just fold it once or three times and stick a rubberband over the end of it. We never had rubberbands except on special occasions, but we did have a boxing process. And we also had the inside two sections to the paper and we had to -- and I'm trying to think of the name of it, what they call it -- you opened up the front page section of it and you threw the other section inside of it hard enough that the whole paper would slide over into a third stack so you'd box a whole bunch -- a hundred papers or whatever, 75 papers -- you had to deliver. In those days you could carry that many because they weren't that big or that heavy. I'm trying to think what they called that; I can't think of it now. But it was quite an experience there; there was a little restaurant around on Fountain Alley that I used to go and have a doughnut or coffee if the presses were broke down and you knew that you were gonna be there maybe till school started before you could get your papers and then you wouldn't have any chance to go home and take a morning snooze after delivering the papers. You'd have to go directly to school. Sometimes I was late. But I didn't have it that long.

After that I remember going to the World's Fair. Some of my fond memories are going to the school up there a couple times at Treasure Island. It was enjoyable, fun.

One of the first murders that I can remember, not

the Hart, but there was a kidnapping. Men took a girl down underneath the bridge uptown San Jose and committed an assault on her and ended up killing her, and I really remember it even till today so it impressed me at the time reading about it. But the names I don't remember now.

I can remember the area growth from the orchard trees to the TV trees on top of houses. I can remember going up into the Almaden picking mushrooms, which I wouldn't dare do today, with my father and the family. Stopping on Blossom Hill Road, which is all paved today which wasn't in that day.

CHRISTIAN

6/3/93